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CASE OF CLONIC FACIAL SPASM SUCCESS-
FULLY TREATED BY STRETCHING THE
SEVENTH NERVE

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CASE OF CLONIC FACIAL SPASM SUCCESS- FULLY TREATED BY STRETCHING THE SEVENTH NERVE.

BY JAMES J. PUTNAM, M. D., BOSTON.

The patient was a young man of about 25 years, and in excellent health; the symptoms were of the usual type, but not specially severe, and had been present for three years, with one intermission of three months' duration. No cause could be assigned either for the original onset of the affection, nor for its disappearance or subsequent reappearance, and no reflex source of irritation could be found.

Encouraged by the favorable results obtained by Baum* and by Schüssler,† in like cases, with the patient's consent I decided to try the effects of stretching the facial nerve, and the operation was performed on April 24th, with the valuable assistance of Dr. A. T. Cabot, essentially in the manner recommended by Baum.

After a search of some length, the nerve was found and drawn on a blunt hook to the surface of the wound. At this stage in the proceedings, the lack of accurate indications as to the amount of force to be safely expended in pulling on the nerve was strongly felt, and my doubt would have been still greater had I already seen the report of Eulenburg's case which appeared at this very period in the *Centralbl. für Nervenheilkunde*, etc., April, 1880, No. 7. In this case the disorganization of the nerve was so complete that the term "stretching" gives an inadequate and misleading idea of the operation.

In the description of Schüssler's operation, this expression is used, that after three or four pullings the nerve "lay forming a small loop in the cavity of the wound," yet the resulting paralysis, though for a time complete, began to improve after a few weeks. I determined, therefore, to loosen the nerve well up, while keeping

* *Berl. Kl. Wochenschr.*, 1878, No. 40.

† *Berl. Kl. Wochenschr.*, 1879, No. 46.

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fairly inside of this mark, and this was accomplished by what seemed a very moderate degree of effort, in two or three successive stretchings. The nerve was carefully scrutinized for signs of congestion, etc., such as were described by Baum, but none were present. There was a good deal of venous oozing during the operation, but no vessels were cut that needed tying. The wound healed perfectly by first intention, though for some days there was enough swelling behind the angle of the jaw to make mastication of solid food impossible.

From the time when the effects of the ether had passed away (not during etherization), it had been seen that there was complete facial paralysis, but the first electrical examination after the operation was not made until the fourth day.

At that time the reaction of the nerve to the faradic current was found already markedly diminished, and in the course of a few days more it had disappeared, and in its place the degenerative reaction of the muscles to the galvanic current developed fully and rapidly.

The later history of the case presents little of special interest. For two months no sign whatever of improvement was seen, unless that possibly the lower lid moved very slightly when attempts were made to close the eye. No disturbance of taste or hearing could be discovered.

When the movements began at last to reestablish themselves, however, in the month of June, two months after the operation, improvement went on more rapidly than could have been anticipated, so that by the end of another month there was but little to be seen of the paralysis, while the twitching had not returned.

So late as January 8, 1881, nearly nine months from the time of the operation, the patient reported by note: "I have had no return of the twitching in my face, and, as far as I am able to judge, the motion is perfectly natural."

These statements were confirmed by personal examination on January 13th, except that, possibly, the naso-labial fold was slightly less marked than normal. The reaction of the nerve, however, as so often happens, was still notably deficient, while all trace of the degenerative galvanic reaction had disappeared.

The only commentary upon the operation of nerve-stretching which suggests itself to me in connection with this case, is that which has already been referred to by Eulenburg in the interesting paper above alluded to, namely, that the freedom with which such delicate nerves as the facial can be pulled upon with impunity has been overstated in the reports hitherto published.

Certainly the accounts given by Baum and Schüssler did not at all prepare me to expect total destruction of the nerve as the result of the force which we expended upon it, nor is it just to compare, without qualification, the effects of such destruction with those of "nerve-stretching," as that is ordinarily understood, though as regarded from the physiological standpoint, the two may be closely related to each other.

Without undertaking to review the theories and observations with regard to the physiological action of the operation, I may be permitted to say that there seems reason to believe it to be compounded of at least four elements, which may be present in varying proportions :*

1. An inhibitory influence exerted on the central nervous system (predominant in the successful cases of nerve-stretching for locomotor ataxia, reported by Langenbuch, Debove, and others).
2. Reduction of the conducting power of the nerve itself, due directly to the stretching, and securing for the nerve and for the nerve centres connected with it a period of relative physiological repose.
3. A greater or less disorganization of the nerve.
4. An alteration in the nutrition of the nerve by rupture of some of its lymph and blood-vessels, and modification of the walls of others.

Which of these influences, or what others, if this list is not complete, play the active part in such cases as this before us, cannot be finally decided till we know more of the pathology, or pathologies, of the affection itself.

Evidently the presence of irritation of the nerve at its exit from the skull, as invoked by Baum as the active cause in his case, is not always to be made out.

However this may be, it is plainly important, from the clinical point of view, that we should know to how much mechanical violence we can expose such a nerve as the facial without fear of serious results, and as a help toward the determination of this point, I made an experiment in the physiological laboratory of the Harvard Medical College, which deserves a moment's attention.

I exposed, namely, under ether, the facial nerve of a large dog, and found it just entering the parotid, and plainly separated into two branches, each about as large as the whole human nerve, one running to the muscles of the ear, the other to those of the face. Raising first the aural branch on a blunt hook connected with a

* *Vide the Boston Med. and Surg. Jour.*, for October, 1880. Report on progress in the pathology of the nervous system.

spring balance, I pulled on it till it parted, which it did under a pressure of nearly 40 pounds, leaving on the peripheral side, fragments of nerve fibre of unequal length, nearly or quite free of connective tissue, drawn out from the parotid gland, as when one pulls in pieces a bit of tow or flax.

The facial branch was then hooked up in similar manner, and steadily drawn upon, while the dog, meantime, was allowed to come out of the ether sufficiently to admit of the exciting of corneal reflexes.

When the tension had reached seven pounds, the motion of the lid was seen to be impaired, and it disappeared at eight pounds, reappearing soon after the pressure was removed.

After a second stretching under the same pressure (eight pounds), however, both reflex and voluntary winking seemed to have been completely lost, certainly very greatly impaired, and as the effect of the ether passed still further away, the presence of complete facial palsy was confirmed.

The dog was next seen on the second day after the operation, and then the paralysis, though marked, had manifestly begun to mend, except as regards the muscles of the ear, whose nerve had been severed. A day or two later, the animal was killed for other reasons.

This experiment, viewed in the light of my operative experience, about the outcome of which I was at that time feeling quite uneasy, impressed two or three points upon my mind.

1. That a knowledge of the exact amount of force brought to bear on the nerve is capable of being made of great service, and that, therefore, the method of steady pulling, which admits of the use of a gauge, is to be preferred to the method of pinching and pulling together, as recommended by Baum.

2. That the patient should be allowed to come partially out of ether, so that the immediate effects of the stretching may be witnessed.

3. That if this last cannot be done, the force used for the first pull should not exceed seven pounds, and that for the second probably not six pounds, unless, indeed, the symptoms for which the patient seeks relief are so severe that the production of a paralysis of months' duration may be fairly risked for the chance of getting rid of them.

Of course these numbers have no exact significance, especially as the proportion of connective tissue in a dog's nerve may differ somewhat from that in the human nerve. Further experiments are called for to settle this and other points.

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